

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference M04B100PCT/ASB	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/GB2004/004660	International filing date (day/month/year) 04/11/2004	(Earliest) Priority Date (day/month/year) 10/11/2003
Applicant THE BOC GROUP PLC		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box II).

3. ☐ **Unity of invention is lacking** (see Box III).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 8

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

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Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

A screw pump comprises a pair of rotors (92,94) each carrying an external screw thread (96,98), the pair of rotors being rotatably mounted in a stator (72) and arranged such that, in operation, the screw threads of the rotors intermesh as the rotors rotate in opposing directions. Means (100,102) are provided for actively controlling the axial position of the rotors within the stator during use of the pump.

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International Application No

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 F04C18/16 F04C29/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 F04C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 257 839 B1 (FANG HONG-SHENG ET AL) 10 July 2001 (2001-07-10)	1-4, 9-12, 14, 22, 23, 27, 29, 30, 33-37
Y	column 4, line 45 - column 5, line 30; figures 6-9	18
Y	US 4 119 392 A (BRECKHEIMER ET AL) 10 October 1978 (1978-10-10) abstract; figures 2, 3	18
A	GB 1 334 304 A (KUEHLAUTOMAT VEB) 17 October 1973 (1973-10-17) page 3, line 33 - line 68; figure 4	1-37
A	US 5 904 473 A (DAHMLLOS ET AL) 18 May 1999 (1999-05-18) abstract; figure 1	1-37

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

Z document member of the same patent family

Date of the actual completion of the international search

25 February 2005

Date of mailing of the international search report

04/03/2005

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB2004/004660

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 6257839	B1	10-07-2001	TW	501675 Y		01-09-2002
US 4119392	A	10-10-1978	DE	2553222 A1		02-06-1977
			BE	848763 A1		16-03-1977
			FR	2333138 A1		24-06-1977
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GB 1334304	A	17-10-1973	NONE			
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			DE	19522560 A1		02-01-1997
			AT	186102 T		15-11-1999
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			DK	834017 T3		25-04-2000
			WO	9701037 A1		09-01-1997
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			ES	2140108 T3		16-02-2000
			GR	3032483 T3		31-05-2000
			JP	11508343 T		21-07-1999
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